ROMMEL
BATTLES FOR TOBRUK

Rules and Reference

CONTENTS

Rommel: Battles for Tobruk

Credits

Research and Design: Frank Chadwick.

Programming and Artificial Intelligence: Worlds to Conquer, Inc. (Steven Hokanson and Bernard K. Dehmelt).

Development: John Harshman and Worlds to Conquer.

Playtesting: Stephen Ambruzs, Jerry Barker, Alan Chiras, Louis Desy, Arlon Harris, Gordon Larsen, Chris Many William Neumann, Frank Snead.

Art Director: Barbie Pratt.

Box Cover Illustrator: David Deitrick.

Introduction

This game is a detailed simulation of four World War II battles, fought between the German *Panzerarmee Afrika* and the British 8th Army over control of the strategic North African port of Tobruk.

Each player takes the role of one of the two sides' commanding generals and, with the same forces and limitations of the historical generals, tries to defeat the opposing army.

THE COURSE OF PLAY

Each battle scenario in *Rommel* consists of a series of turns, each representing one day; each turn is further divided into 12 impulses. The game is played on a map of North Africa, divided into hexagonal cells (hexes). Each hex represents an area about 5 miles across. The armies consist of a number of military units (battalions, regiments, and brigades), each with up to 2000 men or 70 tanks. The game may be played with two players or solitaire, with the computer taking either side.

The turn has four parts:

1. The Axis player gives orders to his units, one unit at a time, ordering them to move, assault, regroup, and so on.
2. The Allied player gives orders to his units.
3. The computer executes both sides' orders, moving all units simultaneously and resolving battles as they occur.
4. The computer displays a review of the turn, showing both players what happened during the turn.

After the turn review, the next turn starts.

IMPORTANT: HOW TO LEARN THE GAME

You don't have to read this entire rules book in order to play the game. First, read and follow the instructions in the section below entitled *Learning to Play*. You should then be able to play by referring to the player reference card. The main body of the rules should be needed only for occasional reference.

Learning to Play

This section is a short, hands-on introduction to *Rommel*, guiding you through one turn of the game.

STARTING

First, load the program as described on the sheet of loading instructions. During loading, you will see the pre-game options screen. This screen allows you to change several features of the game. For this demonstration, however, we won't change anything. Just press ESC and follow the instructions on the loading sheet to continue loading the game. When the game is loaded, turn 1 is ready to be played.

STRATEGIC MAPS

As you can see at the top of the screen, it is now May 15 and the Axis first turn. You are looking at one of the strategic maps, of which there are four. The strategic maps are reduced versions of the tactical map, which is too big to fit on a single screen. Each hex of the map is represented as a small rectangle of color. This is the *terrain* map, showing clear terrain (dark brown), rough terrain and hills (light brown), the coastal road (yellow), and sea and impassable terrain (blue). (You may want to adjust your set's color.) The white box is the cursor.

The various lines of text will be discussed later.

Other Strategic Maps: Press O once to get to another map. This is the *Allied forces* map, showing all Allied units (in blue) plus the map's terrain features (but not the roads). Pressing O once more gives the *both sides* map, showing Allied and Axis (in gray) units. One more O gives the *Axis forces* map, and one more O returns to the *terrain* map.

You can use the strategic maps to look at units and gain information, but not to give orders.

THE TACTICAL MAP

Now change to the tactical map with ⬇. (You can get back to the strategic maps with ⬆.) What you now see is only a small part of the map. You can scroll the map by trying to move the cursor off the edge (see below).

The map shows several types of terrain: clear, rough, hills, roads, tracks, sea, impassable, fortifications, escarpments, and cliffs. Axis units are gray symbols; Allied units are blue symbols. The white cross is the cursor. See the reference card for the various terrain and unit type symbols.

On the top of the map (just below the turn information) is a line giving the side currently winning (Axis) and the score (0), your side's "runners" (operational armored vehicles; you have 170), and the cursor's location (Sidi Azeiz); the cursor location is given by place name for important locations; otherwise it is given by column and row number.

Below the map are several lines which give information on all units in the cursor's hex. There is space for information on four units, although there is only one unit in this hex, the II/5 Panzer Battalion. From left to right, the information given is the unit's identification: corps HQ (GH for this particular unit), division (5L), and unit (II/5); its unit type (Pnz); its current number of men or (for armored units) armored vehicles and the casualties it has lost (40/0); its number of artillery pieces (0); its number of anti-tank guns (0); and its morale (E), fatigue, and supply levels. (There is no information under fatigue and supply levels; these options are turned off.)

Below that is a line showing the terrain of the hex (clear) and a line for error messages and prompts (now blank).

MOVING THE CURSOR

You can move the cursor with either of the directional rosettes, one around F and one around J. See the reference card. For example, U moves the cursor up (due west), and I moves it northwest. Try moving the cursor around for a while and explore the map. The hex location in the upper right changes as you move. When you move the cursor within one hex of the edge of the screen, the map scrolls.

GIVING ORDERS

To give a unit orders, you first have to pick it up. You pick up the top unit in a hex by pressing F or J. Pressing the key again drops the unit and picks up the next unit in the hex (if any). Move the cursor to a hex with an Axis unit and try this.

When a unit is picked up, its information line changes to reverse video, the cursor changes to the unit's symbol, and two new messages appear: the unit's current mode and the time (number of impulses) remaining in its turn.

There are 5 modes, or types of orders; to put the unit into a particular mode, press a key from 4 to 8. See the reference card for a list of modes. Placing a unit in defend or regroup mode constitutes an order; in other modes, you have to move the unit to make an order. Each order subtracts 1 or more impulses from the unit's remaining time.

Movement: There are three modes used in movement: *advance* (4), *march* (5), and *assault* (6). March mode is fast, but will get you into trouble if you run into enemy units. Advance mode is slower but safer; if you bump into enemy units, you automatically attack them. Assault mode is used to make prepared attacks on an enemy position; units move slowly in assault mode but make determined attacks. To give a movement order, place the unit in one of the modes and move the cursor in the desired direction. Try it: pick up an Axis unit (J), put it in march mode (5), and move it west (U). Notice that some time has been removed from its time left; the exact amount depends on the terrain entered.

Defend and Regroup: Putting a unit in defend mode, (7), takes 1 impulse. It gives the unit an all-around defense ability and is helpful for holding fortifications, minefields, and airfields. Putting a unit in regroup mode, (8), takes 6 impulses. It allows the unit to recover some of its

casualties and to improve its morale.

Default Modes: To save you time in changing modes, units start the turn in advance mode. During resolution, however, any time remaining without orders is spent in defend mode; for example, if after orders a unit has a time remaining of 3, it spends the last 3 impulses of the turn in defend mode. If you want a unit to defend for the entire turn, don't give it any orders at all.

OTHER KEYS

There are several keys to help make it easier to give orders.

Canceling Orders: Pressing (X) cancels the last order of the unit which is picked up. (SPACE) cancels all the orders of the unit picked up. (CTRL) (X) cancels all orders for all units; because this is so drastic, the computer asks you to confirm your intentions.

Go Back: Pressing (B) drops the unit currently picked up (if any) and returns the cursor to the hex in which a unit was last picked up. This is especially useful when moving stacks of units.

Next Unit: Pressing (Z) drops the unit currently picked up and picks up the next unit (in the sequence listed in the order of battle). If no unit is picked up, (Z) picks up the first unit in the list. This key is useful for giving your units orders in sequence.

Review: If a unit is picked up, (RETURN) reviews its orders. If no unit is picked up, (RETURN) reviews the orders of all units on the screen. (SHIFT) (RETURN) reviews the orders of all your units.

ENDING THE TURN

Now experiment with giving orders; move as many units as you like, have them march, assault, regroup, and in general practice using the keyboard. When you are done, end the turn.

To end, press (Q); the computer protects you from quitting accidentally by asking you to confirm your decision.

THE ALLIED TURN

Now it's the Allied half of the first turn. If you were playing a two-player game, the Allied player would now go through the same procedure as you just did. Since the computer is playing the Allies, it doesn't need the screen to plan its moves, so it takes the opportunity to tell you what it is thinking about and how much time it spends (in seconds).

RESOLUTION

Once both sides have given their orders, the computer resolves all movement and combat, moving both sides' units simultaneously.

TURN REVIEW

After resolution, the computer displays a strategic map and shows what happened during the turn. Like the *both sides* map, the review map shows both sides' units. The events of the turn are displayed one impulse at a time. A unit flashes white when it moves; it flashes in various colors if it takes casualties (red for infantry or armored vehicle losses, orange for artillery losses, lavender for anti-tank gun losses). New units entering the map flash green. Routing or withdrawing units flash yellow. Eliminated units flash black. A message with the same information also appears on the bottom of the screen, and the unit's identity is shown above the message. Both players (if there are two) should watch the display together. When the turn review is over, you can start the next turn with (Q) or repeat the review with (RETURN). (There are many other things you can do to control the review; see *Turn Review*, page 17.)

OPTIONS

There are four battle scenarios you can play. Brevity has the smallest number of turns and units per side; it's a good scenario to use when learning how to play. Once you're familiar with play, pick any of the scenarios. Battleaxe has more units and turns than Brevity. Crusader and Gazala have the most units and turns.

Visibility, supply, fatigue, and airplanes are options that can be turned on or off with the pre-game options screen. These options, particularly visibility and supply, are

important for recreating the battle conditions but increase the complexity of the game. While learning the game, you should leave these options at their default settings. Once comfortable with play of the game, you should consult the rules on these options and add them to the game.

NECESSARY INFORMATION

The following information will help you make proper decisions during play.

Morale: A unit's morale can be excellent, good, fair, poor, or awful. It affects a unit's ability to attack and defend. Morale is worsened by taking casualties. It may be improved by regrouping.

Unit Types: There are a variety of unit types, each of which has different capabilities. Armored cars, reconnaissance, motorized units, and most tanks move quickly. Tanks and armored cars are armored; they are vulnerable to fire only from artillery, anti-tank guns, and armored units.

Terrain: The time needed to enter a hex varies with its terrain (as well as unit type and mode). Experiment. The combat value varies too. Being behind friendly fortifications or on the up side of escarpments reduces enemy firepower, while firing down an escarpment or hill increases your firepower. A minefield occupied by a friendly unit causes high casualties to attacking enemy units.

Stacking: You can order as many as 12 units to enter the same hex, but only 4 battalions will actually get there; the rest will wait until the hex has room again to continue moving. For stacking purposes, any unit that has more than 640 men counts as two battalions (and 1280 counts as three, etc.).

Facing: A unit in a movement mode has a front and a flank. Its front consists of the hexside in the direction it is attempting to move plus the two adjacent hexsides. Its flank consists of the other three hexsides. Units are at a great disadvantage when attacked in the flank. A unit in defend or regroup mode has all-around facing; all six hexsides are its front.

You now have enough information to play *Rommel*. Use the rest of the rules booklet for reference when you want to look up a specific point during a game. There are also a great many options and capabilities of the program that have not been described in this short section.

Game Contents

Rommel contains the following:

1. This rules booklet.
2. Loading/saving instructions.
3. An 8½ × 11" map of the battlefield (duplicating the map on the computer screen).
4. A player reference card, summarizing all keyboard and joystick commands.
5. A double-sided, single-density program disk.
6. A historical and players' notes booklet.

WARRANTY

If your disk fails, simply return it for replacement to Game Designers' Workshop. If you have owned the disk for less than 90 days, there will be no charge. (Please enclose a copy of the sales slip as proof of purchase date.) Otherwise, there is a charge of $5.00. Outside the United States (U.S. includes APO and FPO), add $2.00 for shipping and handling.

If any other game component is damaged or missing when you buy the game, we will replace it free of charge.

Pre-Game Options

When the game is originally loaded, a screen of game options appears. There are nine options, with their default values displayed. Any value may be changed by pressing the key shown in parentheses before it. For example, to change the *fatigue active* option from *no* to *yes* (or back again), press F. Most options are *yes/no*.

Three are different, as explained below.

When all options are set to your satisfaction, you may begin the game by pressing (ESC).

Many options may be changed during the game. See *Mid-Game Options*, page 27.

Number of Players (P): There are three options: 2 players, 1 player with you commanding the Axis, and 1 player with you commanding the Allies. (In the latter two cases the computer commands the other side.) Press P until you get the setting you want.

Computer Skill Level (L): This option only matters in a 1-player game. L is low, M is medium, and H is high. Adjust the value to your own experience. Press (L) until you get the value you want.

All Enemy Units Visible (V): If *yes*, all units of both players are always displayed on the screen. If *no*, only those enemy units adjacent to your units (see *Visibility*, page 18) are displayed. This creates realistic uncertainty; you won't know what's happening behind the enemy front line and he won't know about you.

Fatigue Active (F): If *yes*, fatigue changes and has an effect on the game. If *no*, it has no effect, and is not displayed.

Communications Active (C): If *yes*, headquarters units appear in the game and supply becomes a major element of play; units consume supply when moving and fighting and headquarters function as supply depots. If *no*, headquarters do not appear and supply has no effect.

Airplanes Active (A): If *yes*, both sides have airplane squadrons available for bombing missions. If *no*, there are no airplanes.

Note: The previous four options let you change the game rules to make the game simpler or more complex. You should leave them all at their default values while you are learning to play. Then change the options one by one until you reach the complexity you want. Visibility and communications are very important to historical accuracy. Fatigue is less important but easy to deal with. Airplanes are of low importance and add much complexity, so save them for last.

Historical Setup (H): If *yes*, all the units start in their historical positions. If *no*, players are allowed to freely reposition their units anywhere within friendly territory before the game begins; supply may also be transferred between headquarters.

Sound Active (S): If *yes*, sound is used to provide feedback during the game. If *no*, there is no sound, except during the turn review.

Battle Scenario (B): You may choose to play any of the four battles for Tobruk. Press (B) until you get the one you want.

Brevity: 8th Army's first attempt to probe Rommel's position, with the main objective of capturing jumpoff points for later operations. Four turns, about 30 (small-sized) units per side.

Battleaxe: The followup to Brevity, trying to relieve the Axis siege of Tobruk. Eight turns, about 40 units per side.

Crusader: Just as Rommel has accumulated the supply for a major assault on the surrounded port, the British launch their second, and eventually successful, relief attempt. 18 turns, about 50 units per side.

Gazala: The spring after Crusader, the British have heavily fortified the line west of Tobruk, from Gazala to Bir Hachiem. Rommel launches a sweeping end run which finally carries him into the port. 28 turns, about 50 units per side.

Maps and Tables

There are three separate types of information displays in *Rommel*: the tactical map, the strategic maps, and the corps tables. They all supply different information to help you in your role as commanding general. Two additional displays, the supply table and the airplane table, are used if the supply and airplane options are set at *yes*.

The Tactical Map: This is the main display, showing terrain and combat units in full detail. Its limitation is that only part of it will fit on the screen at a time. You use this map when giving orders to your units. To get to the tactical map, press the

down arrow ((↓)).

The Strategic Maps: There are four strategic maps showing various combinations of terrain and combat units. Everything is in less detail than the tactical map, but the entire map fits on the screen at once. To get to the strategic maps, press the up arrow ((↑)). To switch between different strategic maps, press (O), (E), or (Y).

The Corps Tables: There are several corps tables, one for each friendly or enemy headquarters (usually a corps). They are useful for reviewing the status of friendly and enemy units. (It's a good idea to examine the corps tables at the start of each turn; you can check your army's general condition at a glance.) When the visibility option is set at *no*, the enemy corps tables are very useful for keeping track of enemy units. To get to the friendly corps tables, press the left arrow ((←)). To get to the enemy corps tables, press the left arrow while on a friendly corps table. To switch between different friendly or enemy corps tables, press a right directional key ((I), (K), (G), or (V)) to go one way or a left directional key ((H), (N), (R), or (D)) to go the other.

The Supply Table: This table is available if the communications option is set at *yes*. You use the table to transfer supply between your headquarters, and it lets you keep track of your supply situation. To get to the friendly supply table, press the right arrow ((→)).

The Airplane Table: This table is available if the airplane option is set at *yes*. You use it to assign missions to your bomber squadrons. To get to the friendly airplane table, press (P).

The Strategic Maps

All four of the strategic maps show the entire playing area (22×32 hexes) to help you review the overall situation. Each hex is represented as a small colored rectangle. You can move the cursor (the white box), look at units, even pick them up, but you can't give them orders.

There are several lines of information above and below each map; this information is the same as on the tactical map, and is explained in the next rules section.

THE TERRAIN MAP

The first display to appear at the beginning of each player's turn is the terrain map. It shows the coastal road in yellow and rough/hill terrain in orange; clear terrain is dark brown and sea or impassable hexes are blue. Units are not displayed on this map, but information is still displayed on units in the hex the cursor occupies.

THE BOTH SIDES MAP

This map shows the units of both sides: Allies in blue and Axis in gray. The map always shows all your units. If the visibility option is set at *yes*, it shows all the enemy units too. If the option is set at *no*, it shows only those enemy units adjacent to at least one of your units. (This is true of the one side maps too.)

ONE SIDE MAPS

There are two of these. Both show hill and rough hexes in orange. The Axis map shows all Axis units, and the Allied map shows all Allied units.

CHANGING MAPS

You can get to the strategic maps by pressing the up arrow ((↑)) key.

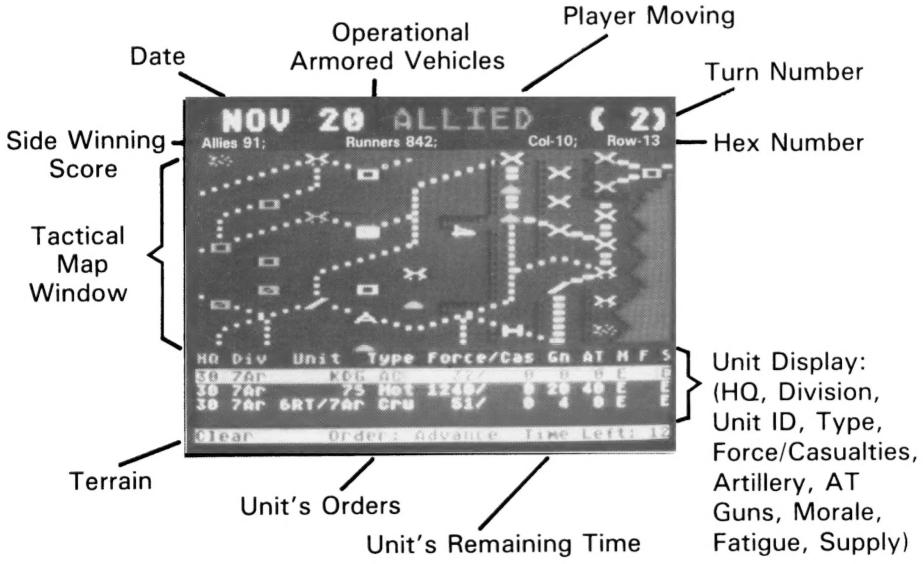
You can get from one strategic map to another by using (O), (E), and (Y).

The cursor will remain in the same hex when changing maps; however, a unit which is picked up is automatically dropped.

The Tactical Map

The tactical map is a detailed map of the area around Tobruk, divided into hexes. Unlike the printed map, no actual hexes appear on the screen, just their contents; the hexes are still easy to see, and the screen is less cluttered that way.

The screen shows only part of the tactical map at a time: a window, ten hexes wide by seven hexes high, which can be



scrolled over the entire map by moving the cursor close to the edge of the screen.

Each unoccupied hex displays its terrain type; if there is a unit in a hex, its terrain type is not visible (but see below). Some terrain is also placed between the hexes (on the hex-sides).

UNITS

The eight basic types of units (tanks, armored cars, reconnaissance, motorized infantry, machine gun, infantry, flak, and headquarters) are shown on the map using different symbols; see the reference card. Minefields are also displayed as if they were units. Axis units are gray, Allied units blue. Only the symbol for the top unit in the hex (or the unit currently picked up) is shown on the map.

TERRAIN

There are seven possible terrain types in a hex: clear, town, airfield, hill, rough, sea, and impassable. Some terrain features are found on hexsides: road, track, escarpment, cliff, fortification, and inlet. Clear hexes are solid brown; sea and impassable hexes are blue. The symbols for the other types are shown on the player reference card.

THE CURSOR

The cursor is the white symbol on the screen. If no unit is picked up, it's a cross; if a unit is picked up, it's the unit's symbol. The cursor is used to give orders to units and to move the player's attention around the map.

THE INFORMATION DISPLAYS

There are several lines of information above and below the map. The top line gives the current turn: date, player whose move it is, and turn number. The second line gives the side currently ahead and the score (see *Victory*, page 26), the side's number of runners (operational armored vehicles), and the number—column (C) and row (R)—of the hex the cursor is in.

The hex number is important when consulting the printed map. Each hex on the printed map has a four-digit number corresponding to the hex numbers on the screen (the first two digits are the column and the second two are the row).

For some hexes, the screen displays a name instead of a number. These are locations of particular importance to the battle, to help you relate the map to historical ac-

counts. These hexes are also named on the printed map.

The first five lines under the map (only three lines on the strategic maps) are the unit display, showing information about the top four units in the hex the cursor is in. This information is explained under *Units*.

The bottom line shows, on the left, the terrain in the cursor's hex. If a unit is picked up, it shows additional information about that unit (see *Units*). The line is also used for error messages and prompts: messages from the computer to you.

The Corps Tables

The corps tables list every unit in the game including eliminated units, reinforcements which have not yet entered, and minefields. There is one corps table for each friendly and enemy headquarters unit (usually a corps); units which belong to no headquarters are listed under the army headquarters, as are minefields. Occasionally, there are more units in a corps than will fit on a single screen; in such cases, the corps is split into two screens (as if it were two separate corps).

For each unit, the corps table displays the same information that appears on the unit display below the tactical and strategic maps (see *Units* below). Information is also displayed about the hex occupied by the unit the cursor is on.

To get to the friendly corps tables, press (←); to get to the enemy corps tables, press (←) while on a friendly corps table. To switch between different friendly or enemy corps tables, press a right directional key ((I), (K), (G), or (V)) or a left directional key ((H), (N), (R), or (D)).

Information about Enemy Units: If visibility is set to *yes*, all information about enemy units displayed on the enemy corps table is updated continuously. If visibility is set to *no*, then this information refers to each enemy unit's condition the last time it was adjacent to one of your units. The enemy corps table is most useful when the visibility option is set at *no*; in effect, it acts as your intelligence staff, keeping track of everything you know about enemy units. See *Units* below.

THE CURSOR

The line shown in reverse video is the cursor. You can move the cursor up by pressing (U) or (T), and down by pressing (M) or (C). If the cursor moves off the bottom, it returns to the top, and vice versa.

If you go to the tactical or strategic map, the cursor appears in the hex of the unit it was on.

Units

Troops are organized into units; you give them orders one unit at a time.

There are eight basic types of units: tanks, armored cars, reconnaissance, motorized infantry, machinegun, infantry, flak, and headquarters. Each type is represented on the map by a different symbol, as shown on the reference card. In addition to the basic types, there are several models of tanks with differing characteristics, and Italian Bersaglieri are a special type of motorized infantry.

Tanks and armored cars are impervious to infantry fire, but other tanks, anti-tank guns, minefields, and artillery can kill them.

Reconnaissance, motorized, Bersaglieri, machine gun, and infantry are all different types of infantry. Anti-tank guns don't affect them but all other weapons do.

Flak units are armed with 88-millimeter heavy anti-aircraft guns (treated as very effective anti-tank guns) and 20-millimeter light anti-aircraft guns (treated as infantry).

Headquarters are not combat units. (They aren't really units at all, merely an abstract representation of supply depots and supply vehicles.) They only appear when the communications option is set at *yes*. They provide no benefit whatsoever in combat and are eliminated whenever an enemy unit moves into their hex. Unlike combat units, which are not replaced if eliminated, an eliminated headquarters is replaced two turns after its elimination.

Almost every combat unit includes artillery, and most non-armored units have

anti-tank guns. These are mostly division-level assets attached for the period of the battle. These attached guns travel with the unit at all times.

THE UNIT DISPLAY

On the tactical map, the unit display shows information about the top four units in the hex the cursor is in. Further units in the hex (up to a total of 12) can be seen by picking up the top units. On the strategic map, the display shows the top two units. The corps tables show an entire corps at a time. Units are listed in the order in which they appear in the order of battle in the historical notes booklet.

The text line at the top of the unit display shows the display's headings.

Friendly Units: For friendly units, the headings translate as: the unit's immediately superior headquarters (HQ), its division, unit identification, unit type, current unit strength in men or armored vehicles (Force), total casualties, number of artillery pieces (Gn), number of anti-tank guns (AT), and three unit effectiveness factors: morale, fatigue, and supply state.

Enemy Units: For enemy units, casualties, morale, fatigue, and supply are missing; in their place appear "Trn", "Co", and "Ro". These are the turn and hex (column and row) in which the unit was last adjacent to one of your units; of course, the unit's location may have changed drastically since it was last seen. This information appears only on the corps table (see above); it's most useful when the visibility option is set at *no*. Enemy strengths are only approximate: strength is rounded off to the nearest 10 tanks or 100 men. Artillery and anti-tank guns are rounded off to the nearest 5.

Headquarters: The headquarters from which the unit receives its supply. If this is blank, the unit may draw supply from any friendly HQ.

Division: The division to which the unit belongs, if any. When units of different divisions attack together their effectiveness is reduced.

Unit Identification: The unit's individual identification; see the historical notes booklet for an explanation of abbreviations.

Type: The unit's type. Abbreviations are explained in the table below.

Tanks	*Other Units*
Pnz ..... Panzer	AC.....armored car
Mat.... Matilda	Rcn..... reconnaissance
Val...Valentine	Inf..... infantry
Cru...Crusader	Mot...motorized infantry
Stu..... Stuart	Ber.....Bersaglieri
Mk6...Mark VIb	MG.....machinegun
Grt..... Grant	Flk ..... flak
	HQ ..... headquarters

Force: This is unit's current strength, in men (for most units) or armored vehicles (for tanks and armored cars). Starting strengths are given in the order of battle and are as close a count of historical strengths as the records provide.

Casualties: This is the number of men or tanks lost in battle. Some of these may be recovered by regrouping.

Artillery: This is the number of artillery pieces now in the unit. These may be lost in battle and can never be recovered.

Anti-tank Guns: This is the number of anti-tank guns now in the unit. Like artillery, they may be lost in battle and can never be recovered.

Morale, Fatigue, Supply: These are three fluctuating values important to a unit's effectiveness. They each have one of five possible values: E (excellent), G (good), F (fair), P (poor), and A (awful). To the left of the supply value, there may also be a number indicating the unit's fuel supply.

THE MODE LINE

The mode line is the line below the unit display which shows the terrain of the cursor's hex. If a unit is picked up, this line also shows the unit's current orders and the time remaining in its turn.

Cursor Movement and Picking Up Units

Directional Keys: The most commonly used keys are the cursor movement or

directional keys: keys used to indicate the six possible directions. There are two directional rosettes: the six keys surrounding (F) and the six surrounding (J). See the reference card. When no unit is picked up, these keys move the cursor. For example, pressing (U) or (T) moves it one hex due west (up on the screen); pressing (G) or (I) moves it one hex northwest, and so on. If the cursor moves to within one hex of the edge of the screen, the map scrolls.

The directional keys are used to indicate directions when giving movement orders to units or to complete defend and regroup orders.

Picking Up and Dropping: Pressing (J) or (F) will pick up a unit or, if a unit is already picked up, drop it and pick up the next unit in the hex (if any). When a unit is picked up, it is shown on top of the unit display, its line changes to reverse video, and its orders and time left appear on the mode line. A unit may be given orders only if it is picked up.

Go Back: Pressing (B) drops the unit currently picked up (if any) and returns the cursor to the last hex in which a unit was picked up. This key is particularly useful when giving movement orders to a stack of units.

Next Unit: Pressing (Z) drops the unit currently picked up and picks up the next friendly unit listed in the order of battle. A message appears when you reach the last unit. If no unit is picked up, pressing (Z) picks up the first unit listed in the order of battle. This key may be used to cycle through all friendly units, giving them orders as you go.

Orders

During your turn, you give orders to your units. It is important to remember that this is all you are doing; when you move a unit, you are merely telling it to move, and whether it actually moves is determined during turn resolution. Enemy (or friendly) units may get in the way and prevent it from carrying out its orders.

To give a unit orders you must first pick it up. Then set the unit's mode to the type of order you want it to perform by pressing the correct key, from (4) to (8) (see the reference card). The unit's mode is shown on the mode line. Each mode is used for a different order. Putting a unit into defend or regroup mode gives it an order; for march, advance, and assault mode, orders are entered by moving the cursor.

Orders take time. Every unit starts the turn with 12 impulses. Each impulse represents 1½ hours during the day or 4½ hours at night. The first ten impulses of each turn are day impulses; the last two impulses are night impulses (see *Night*, page 20). When you give a unit an order, the time the order takes is subtracted from the unit's remaining time. If you cancel the order, the unit gets its time back.

When you pick up a unit, its mode is the same as the last order entered for it and its remaining time is the same as it was when you last dropped it. If no order has been entered, its mode is advance and its remaining time is 12 impulses.

Note: If a unit has any unused time after all its orders are entered, it will spend those impulses in defend mode. If you want a unit just to defend for the entire turn, you don't have to give it any orders.

MOVEMENT

There are three movement modes: *advance* ((4)), *march* ((5)), and *assault* ((6)). Units in march mode can use roads and tracks to speed their movement, but they are vulnerable to attack, so march is best avoided when close to the enemy. Advance mode should be used most of the time; units in advance mode attack any enemy units they encounter. Assault mode is used for prepared assaults; it takes a long time but increases artillery firepower, and units will take higher losses before giving up the attack.

How to Move: Movement is handled the same way in all three modes. Put the unit in the desired mode and move it using the directional keys. Moving requires various amounts of time, depending on the unit's mode and the terrain of the hex entered or

hexside crossed, as shown in the movement costs portion of the unit characteristics table.

Stacking: When giving movement orders you can move your units through enemy units and can stack up to 12 friendly units in a single hex. When movement is resolved, however, a unit can't move into an enemy hex until all enemy units have retreated from it and any minefield has been destroyed. In addition, no more than four friendly battalions may be in the same hex at the same time. (Thus, up to 12 units may be ordered to move to a single hex, but only four battalions will actually enter and stack in the hex.) Each armored unit (tank or armored car unit) counts as one battalion; each other unit counts as one battalion for each 640 men (or fraction thereof) in it. For example, a unit with a strength of 900 men has 2 battalions; only two such units will fit into a hex.

Headquarters and minefields do not count toward stacking, and terrain has no effect. Stacking has no effect on combat: up to 24 battalions could attack a single hex (4 each from the six surrounding hexes), although only four of these units could advance into the hex if victorious.

If your units get in each other's way, extra units wait until there is room in the hex. Watch out for traffic jams. For further details, see *Resolving the Turn*, below.

If you drop a unit in an enemy-occupied hex, only the enemy unit will be visible on the tactical map and on the unit display, so remember where you dropped them. However, the message "Friendly and enemy units in hex." will briefly appear whenever you move the cursor to that hex; you can also pick up your units in enemy-occupied hexes, and, if you do so, your units in the hex will appear on the unit display.

Note: If both sides have units in a hex, the strategic map will show only your units.

You can actually order more than 12 units to a hex. If you do so, however, you won't be able to see them on the display. Units are listed on the unit display in the order in which they appear on the order of battle. To find the 13th or higher unit in a hex, you must move some of the other units out of the hex.

Facing: Units in a movement mode are always faced in the direction they are attempting to move. A moving unit's front is its facing hexside plus the two adjacent hexsides. The other three hexsides are its flank. Units in defend or regroup mode have all-round facing; all hexsides are their fronts. All sides of a unit in disordered mode are flanks. If a unit is attacked from its flank, its casualties are increased and its return fire is less effective. However, a flanked unit's casualties are not increased if it is stacked with another friendly unit in defend mode; this allows you to withdraw some of your troops from combat without their being attacked in the flank, by leaving a rear guard.

DEFEND

Putting a unit in *defend* mode ([7]) completes a defend order. Further defend orders may be entered by pressing any directional key (or [7] again). A defend order takes 1 impulse. When attacked, a unit in defend mode takes fewer casualties than if it was in any other mode. Further defend mode uses are to give the unit all-around facing, to hold certain positions (see below), to synchronize movement between units and avoid traffic jams. If a unit spends an impulse in defend mode and is not attacked, it recovers some of its fatigue, especially at night (the last two impulses of each turn). Units in defend mode in a fortification, minefield, or airfield will accept higher casualties than usual before disengaging.

Remember that a unit automatically assumes defend mode if it has no other orders.

REGROUP

Putting a unit in *regroup* mode ([8]) completes a regroup order. Further regroup orders may be entered by pressing any directional key. A regroup order takes 6 impulses. If a unit spends 6 impulses in regroup mode and is not attacked, it recovers some of its casualties, fatigue, and

morale.

CANCELING ORDERS

You can cancel a unit's orders at any time. When a unit is picked up, pressing (X) cancels its last order. By repeatedly pressing (X), you can cancel all of a unit's orders. To cancel all of a unit's orders at once, press (SPACE).

Occasionally you may want to cancel all the orders for all of your units. This is the same as restarting your portion of the turn. This can be done easily by pressing (CTRL) and (X) at the same time. Since this can have drastic effects, to guard against accidentally pressing this key the computer gives you a chance to change your mind; press (CTRL) (X) again to restart the turn. Note that doing this cancels all orders for all of your ground units; it does not cancel any bombing missions (if you are using the airplanes option) that you may have assigned to your squadrons.

REVIEWING ORDERS

Reviewing orders works on the tactical map only. If a unit is currently picked up, you can review its orders by pressing (RETURN). The computer will quickly run backward through the unit's orders (to show you where it came from) and will then run more slowly forward through its orders. If no unit is currently picked up, (RETURN) reviews the orders of all units currently on the screen. Pressing (SHIFT) and (RETURN) at the same time reviews the orders of all friendly units. A review can be stopped at any time by pressing (X). (The computer will finish the unit currently being reviewed.) You can pause the review (or resume it) by pressing (SPACE)

FINDING UNITS WITH NO ORDERS

At the end of your turn, you may sometimes be uncertain whether you have given orders to all of your units. This can be checked easily. Go to the tactical map or the both sides strategic map and press (?). The cursor will move to the first friendly unit without orders (as listed on the order of battle). If all units have orders, the message "All units have orders" will appear.

To locate all the units without orders, go to the tactical map or the both sides strategic map and press (SHIFT) and (?) at the same time. The cursor will jump from unit to unit, flashing the message "No order entered" for each unit without orders, and skipping units which have orders. This can be stopped at any time by pressing (X). (The computer will finish the unit currently being examined.) You can pause by pressing (SPACE)

OTHER KEYS

Pressing (O) or (E) cycles the unit through the various modes in order. Note that entering defend or regroup mode with (O) does not complete an order; you must press a directional key for that.

Pressing (Y) cycles through the modes in reverse order.

Pressing (Ø) (zero) drops a unit without picking up the next one in the hex.

QUITTING THE TURN

After you are finished with all your orders, quit the turn by pressing (Q). To prevent doing this by accident, the computer asks you to confirm your intentions. Press (Q) again to quit.

After the Axis player quits, it's the Allied player's turn. After the Allied player quits, the computer resolves the turn's action.

Resolving the Turn

After both players have issued orders, the computer resolves them all simultaneously, one impulse at a time. If an order takes more than one impulse to execute, it takes effect in the last impulse; for example, if it takes 4 impulses for a unit to move into a hex, the unit spends 3 impulses in its starting hex and moves in the 4th impulse. If there are enemy units in the destination hex, however, both sides begin firing as soon as the unit begins executing the order.

MOVEMENT

During turn resolution, a unit may not

enter the same hex as an enemy unit, and at most four friendly battalions may be in a hex at one time. If movement is not carefully thought out, this may result in considerable delay as units get in each others' way.

Enemy Units: If units of both sides try to enter the same empty hex during the same impulse, only one will actually enter: the one which has spent the longest time trying to enter. Thus if it takes one unit 2 impulses to enter a hex and it takes another unit 3 impulses, the second unit gets in. (Of course, it must have started one impulse earlier.) If both units have spent an equal amount of time, precedence goes in order of type with faster units winning the hex; for example, armored cars before other armor, motorized infantry ahead of other infantry. If the two units are of the same type, the computer chooses alternate sides each time throughout the game. The unit which doesn't make it in tries again in the next impulse.

If a unit tries to enter a hex already occupied by an enemy unit, combat occurs. See *Combat* below.

Friendly Units: If two units of the same side try to enter the same hex and this would result in more than four battalions in the hex, only one will actually enter. Again, it's the one which spent the most time entering. If both have spent the same amount of time, precedence goes in order of type. If both are of the same type, the computer chooses the one listed first on the order of battle. The unit which doesn't make it tries again in the next impulse.

COMBAT

Whenever a unit begins to move into an enemy-occupied hex, combat occurs. Units attack and defend in groups; all units attacking the same hex are combined into a single attack. For maximum effect, you should have as many units as possible attack together, since the defending units then have their defensive fire spread out among the multiple attackers.

Combat within a single impulse is resolved in a complex sequence, with the attacker and defender firing and/or disengaging at different times. The general outline for combat resolution is as follows:

1. Attacker fires artillery.
2. Defender fires all weapons.
3. Defender takes casualties from attacker's artillery fire.
4. Attacker takes casualties from defender's fire and fires all weapons except artillery.
5. Defender takes casualties from attacker's fire (except artillery).

Within this sequence, both sides check for disengaging, as explained below. If the defender disengages and the attacker does not, the attacker advances into the defender's hex if the required time for movement has elapsed.

Disengagement and Morale Checks: When a unit takes too many casualties, it disengages from battle, ignoring the rest of its orders for the turn and assuming defend mode. A unit which disengages takes a reduced number of casualties in the impulse it disengages. Recon and armored car units in advance mode take fewer casualties when disengaging than other units (they are specially trained to scout the enemy). If a unit disengages, the units it was attacking take reduced casualties. The number of casualties a unit will accept before disengaging depends on its modified morale level (see below); the better a unit's morale, the more casualties it will accept before disengaging. In addition, units in defend mode in fortifications, minefields, and airfields, as well as all units in assault mode, will accept extra casualties before disengaging. An attacker which disengages remains in its original hex. A defender which disengages must check morale. If it passes, it withdraws one hex; if it fails, it routs two hexes, assumes disordered mode for the rest of the turn, and suffers a drop in morale. The better a unit's modified morale, the better its chance of passing the morale check. If a unit is unable to withdraw (because of enemy units or impassable terrain) it stays in place and suffers double casualties.

Modified Morale: A unit's effective

morale is improved if it is in a fortification or minefield hex. (When a hex contains both—like the Tobruk perimeter—it is extremely difficult to dislodge a defender.) A unit's morale is impaired if it is in march or disordered mode, is being attacked from its flank, has poor or awful fatigue, or has suffered a large number of casualties since the start of the turn.

Effects of Mode on Combat: March mode is unsuited to combat; if a unit in march mode attacks or is attacked, it automatically forgets its orders and follows this sequence, remaining in place: it spends one impulse in march mode, three impulses in disordered mode, and the remainder of the turn in defend mode. In march mode, only armored vehicles and recon troops may fire, and at reduced effectiveness; enemy fire effectiveness is increased. In disordered mode, all weapons fire at reduced effectiveness and enemy fire effectiveness is increased.

Advance mode is the most generally useful mode for combining movement and combat. All weapons may fire, although artillery and anti-tank guns fire at reduced effectiveness. The unit continues attacking until one side disengages or is destroyed.

Assault mode is useful for attacking fixed positions, especially if the attacker has a lot of artillery. Assaulting units spend one impulse organizing for the attack (in defend mode), one impulse in preparatory bombardment (only the attacker's artillery fires, at full strength), and following impulses firing (with all weapons at full strength) until one side disengages or is destroyed.

Firepower: The firepower of a unit depends primarily on its number of men or vehicles, artillery pieces, and anti-tank guns and their types. However, other factors also affect firepower, as listed below.

Firing Unit's Mode: In march mode, only armored vehicles and recon troops may fire, and at reduced effectiveness. In advance mode, artillery and anti-tank guns fire at reduced effectiveness. In disordered mode, all weapons fire at reduced effectiveness.

Target Unit's Mode: Firepower is increased when firing at units in march or disordered mode, and decreased when firing at units in defend mode.

Morale: The better a unit's morale, the greater its firepower.

Fatigue: The better a unit's fatigue, the greater its firepower (if the fatigue option is set at *yes*).

Supply: Units which run out of ammunition stop firing. Units which run low on ammunition stop firing their artillery (if the supply option is set at *yes*).

Terrain: Units firing up escarpments or into enemy fortifications have their firepower reduced. Units in defend mode firing down escarpments or down hills (from a hill hex to a non-hill hex) have their firepower increased.

Flanks: A unit's firepower is reduced if it is firing toward its flank. A unit's firepower is increased if it is firing at its target's flank and there is no unit in the target hex in defend mode.

Divisional Integrity: When two or more units with different division IDs attack together (the same target hex), their firepower is slightly reduced. The more divisions firing, the greater the reduction. Units defending in the same hex are not affected. A unit with no division ID may attack together with any unit without reducing firepower.

Multiple Targets: A unit's firepower is split equally among all the hexes it is firing into. Within a single target hex, a unit's firepower is divided among targets in proportion to their strengths (in men or armored vehicles). For example, if a unit is attacking one hex and being attacked from two other hexes, one third of its firepower fires into each hex; if one of those hexes contains two units, one with 30 Matildas and one with 20 armored cars, 60% of the firepower committed to that hex attacks the Matildas and 40% attacks the armored cars.

ANTI-TANK AND CONVENTIONAL FIRE

There are two types of fire. Anti-tank guns perform anti-tank fire; men perform conventional fire; armored vehicles and ar-

tillery do both, and fire both separately. Anti-tank fire inflicts losses on armored vehicles; conventional fire inflicts losses on men. (Artillery and anti-tank guns take losses proportional to those of the men or vehicles in their units). Thus men have no effect on armored vehicles, and anti-tank guns have no effect on men. The discussion of combat above applies to both types of fire.

Conventional fire losses are applied as a percentage of the target unit's strength. However, when there are fewer than 100 men in a hex, the percentage lost increases, and when there are more than 640 men in a hex, the percentage lost decreases.

Anti-tank fire losses are applied as numbers of vehicles lost; a hex containing 100 tanks loses the same number as a hex containing 50 tanks.

If an armored vehicle is destroyed during an impulse, it doesn't fire conventional fire in that impulse.

DEFEND

Defend is the default mode: if you don't give a unit any orders, or if it runs out of orders, it spends the rest of the turn in defend mode. Defend mode decreases the casualties a unit takes when attacked. Units in defend mode fire all their weapons at full effectiveness in all directions; they have increased firepower when firing down hills or escarpments; they are willing to take higher losses before disengaging if in fortifications, minefields, or airfields; and they recover some of their fatigue if not attacked.

Each defend order takes only one impulse, and may be used to help synchronize attacks, avoid traffic jams, etc.

REGROUP

By regrouping, a unit can recover some of its casualties, morale, and fatigue. A unit's regrouping is interrupted (and it gets no benefit) if it receives any casualties during the six impulses it spends regrouping. A successful regroup order recovers a full fatigue level, half a morale level, and can recover 10% of the men or 50% of the armored vehicles the unit has lost. However, there is an absolute limit to the number of armored vehicles a unit may recover in one regroup order: 2 for Italians and 6 for British and Germans. Artillery and anti-tank guns are never recovered.

Turn Review

After the turn has been resolved, the computer displays a review of the turn's events on a strategic map. Both players should watch this display together.

The map shows Axis and Allied units. The turn is displayed one impulse at a time, showing all movement and combat. When a unit moves, its unit symbol flashes white to draw your attention. When it takes casualties it flashes in various colors, depending on the type of casualties: red for infantry or armor losses, orange for artillery losses, lavender for antitank gun losses. Units entering the map flash green. Routing or disengaging units flash yellow. Eliminated units flash black. A message with the same information appears on the message line. A text description also appears, giving the unit's estimated strengths at the end of the game turn.

If the visibility option is set at *no*, only those units visible to both sides will be shown on the map. Units which move away from the enemy will disappear from the map, and units which move adjacent to enemy units will suddenly appear. Depending on the degree to which the forces are engaged, most of the units present (or even all of them) may be invisible—which should make the players very nervous indeed.

Control: There are a number of keys which give you control of the turn review.

Pressing (X) skips to the end of the turn review.

At the end of the turn review, pressing (Q) ends the review and starts the next (Axis) turn.

At the end of the turn review, pressing (S) stops the game, allowing you to modify options save the game.

Pressing (RETURN) starts the review over.

(F) or (J) stops the review; each further

press of (F) or (J) moves the review one step forward, showing one event happening to one unit (moving a hex, taking one type of casualties, routing, etc.).

(B) stops the review and moves it one step backwards, so you can back up to repeat something you missed.

(SPACE) continues the review if it has been stopped by any other key.

(+) increases the delay of the review (making it go slower); (−) decreases the delay (making it go faster). Each press of the key changes the delay by a small amount; it takes several presses to have a major effect.

Any other key stops the review.

Visibility

If the visibility option is set at *yes*, all units of both sides are always visible to both players. If the option is set at *no*, only those enemy units can be seen which are adjacent to at least one friendly unit. Note that new enemy units do not appear while you are giving orders—since your units haven't really moved yet, they can't see anything new either. When the visibility option is set at *no*, you should pay especially close attention to the turn review; enemy units may move completely through your line during the turn, and the turn review may be your only glimpse of them.

The enemy corps tables are most useful when visibility is set at *no*. The corps tables keep track of all enemy units, telling you the last turn in which they were seen, where they were, and what their strengths were at that time (in round numbers). Note that the table information for an enemy unit is updated even if the unit was glimpsed only briefly during turn review.

Terrain

Each hex contains a single type of terrain, represented by a symbol, as shown on the printed map. The terrain of the hex containing the cursor is also shown at the left of the mode line. Roads, tracks, cliffs, escarpments, inlets, and fortifications are between hexes, on hex-sides. Terrain affects movement and combat. (It also affects supply; see *Supply*, page 20.)

Movement: The length of time it takes to enter a given hex is shown on the unit characteristics table.

Roads and Tracks: The value for road or track is only used if the unit is in march mode and is entering the hex or crossing the hex-side on a road or track.

Escarpments: The cost for crossing an escarpment applies whether moving up or down and is in addition to the cost of entering the hex. Roads and tracks negate escarpment costs for units in march mode.

Combat: Units firing up escarpments or into enemy fortifications have their firepower reduced. Units in defend mode firing down escarpments or down hills (from a hill hex to a non-hill hex) have their firepower increased.

Fortifications

Fortifications represent substantial efforts made by the Allies around Tobruk and by the Axis around Bardia, to form a strong perimeter position to hold an important harbor. They were composed of bunkers, antitank obstacles, barbed wire, etc. Units in fortifications receive considerable protection from enemy fire whether they are attacking or defending. Fortifications are indestructible and may be used by either side.

Minefields

Both players have minefields in all four battles (except that there are no Axis minefields in Brevity). In some respects they act as terrain features, in others as units.

They are terrain features in that they never move, you can't give them orders, and they don't affect stacking. They are units in that they belong to one side and are shown on the unit display. In combat, minefields act as artillery in defend mode, with the number of guns shown. A minefield's effect is vastly reduced if no friendly unit is in its hex. Armored vehicles may never enter an enemy minefield; other

units may enter enemy minefields (after enduring their fire, of course), and the minefield is eliminated as soon as the unit enters its hex. Entering the minefield's hex is the only way to kill it; firing has no effect. Units may freely enter and leave friendly minefields without taking losses.

Minefields improve the morale of friendly units stacked with them; units in defend mode will also accept more casualties before disengaging.

Casualties

A unit's casualty total is the number of men or armored vehicles it has lost in combat. The unit's current strength is its initial strength minus its casualties. Heavy casualties can lower morale: for every 10% of its initial strength a unit loses, it drops half a morale level. Casualties (and thus morale) can be recovered by regrouping. This represents the return to the unit of stragglers who became separated in battle; for armored units it also represents repair and replacement of vehicles.

If a unit's current strength ever drops to zero or its morale ever falls below awful, it is eliminated and immediately disappears from play.

Morale

Morale represents a unit's fighting spirit, training, and experience. There are five levels of morale: excellent (E), good (G), fair (F), poor (P), and awful (A). Morale affects the ability of a unit to hold its ground, attack enemy positions, fire effectively, avoid panic, and remain a coherent combat force.

Every unit starts at its maximum morale level, ranging from fair to excellent. Units that begin the game with a low morale level can't improve it to a higher one. However, units whose morale has deteriorated in play can gradually recover and return to their starting level by regrouping.

Changes in Morale: A unit's morale is reduced by one level if it routs, by half a level for every 10% casualties it suffers, and, if the supply option is set at *yes*, by one level if it has no ammunition left at the end of the turn. However, no unit's morale may drop by more than one level in a single turn. Each peaceful regroup order raises morale half a level.

A unit's effective morale (for determination of disengagement or rout) can be drastically modified by the local situation. See *Combat*, page 15.

Fatigue

Fatigue represents temporary loss of effectiveness through exertion and stress. It is easily gained and easily lost. Fatigue changes and affects the game only if the fatigue option is set at *yes*. The levels of fatigue are the same as those of morale. Fatigue affects combat and movement.

Movement: Units which travel on foot (infantry and machinegun units) take two extra impulses to enter each hex if they have awful fatigue.

Combat: The worse a unit's fatigue level, the lower its firepower. Units in assault mode are greatly affected; units in advance, march, or disorganized mode are less affected; units in defend or regroup mode are not affected by fatigue at all. In addition, a unit's effective morale is reduced if it has poor or awful fatigue.

Changes in Fatigue: Fatigue increases each turn based on the most tiring activity the unit performed that turn. Routing is the most tiring, and the unit jumps two levels. Attacking is almost as tiring, defending (if attacked) is less so, and moving is least tiring. Units which do not move or fight suffer no increase in fatigue at all.

Both defending and regrouping recover fatigue if the unit is not engaged in combat. A unit recovers one level of fatigue per regroup order or half a level per four successive defend orders. Each night impulse spent defending counts triple. For example, a unit that defends (without being attacked) for the last four impulses of a turn recovers one full fatigue level.

Night

The last two impulses in each turn are night. Each night impulse represents 4½ hours instead of the usual 1½ hours. However, because darkness slows down movement and combat, they are resolved in the same way as in a day impulse. One activity can take advantage of the extra time: rest. Defending is three times as effective at removing fatigue during a night impulse.

Supply

If the supply option is set at *yes*, units must consume supplies in order to move and fight, and a complex system to move those supplies, featuring headquarters and the supply table, is added to the game. If the supply option is set at *no*, none of these complications are included.

Supply is measured in supply points, each representing several tons of fuel, ammunition, or food. Both sides receive supply points each turn in off-map depots, from which they are transferred first to headquarters and then to combat units, where they are consumed. Supply points begin as generic points; when transferred to units they become fuel or ammunition. (As a game abstraction, ammunition also doubles as food.) Players transfer supply between headquarters using the supply table; distribution to combat units is performed by the computer.

HEADQUARTERS

Headquarters (HQs) are not really combat units. Although they act like combat units in some ways, they are just an abstract way of representing supply depots, convoys, and rear echelon support troops. HQs may be given only march and defend orders, and have no manpower strength or weapons. HQs receive supply points from other HQs, store them, and distribute them to units under their command. A HQ's current total of supply points is shown on its unit display.

Types of HQs: There are three types of HQ: off-map supply depots, army HQs, and corps HQs. Each side has one off-map supply depot, one army HQ, and either two or three corps HQs, depending on the scenario. (*Note:* In Brevity and Battleaxe, because of their small numbers of units, some of the "corps" HQs are actually division or *kampfgruppe* HQs. In Brevity, neither side has army HQs.)

Attacking HQs: HQs may be attacked by conventional fire. Instead of casualties, enemy fire destroys supply points. If there is no friendly combat unit in the HQ's hex, an enemy unit may enter, eliminating the HQ. Nearly half its supply points are captured, and are added immediately to the closest enemy HQ. Of the remainder, some are destroyed and some appear along with the HQ when it is replaced.

Replacement of HQs: A destroyed HQ is replaced on the second turn following its destruction; for example, a HQ eliminated on turn 1 re-appears at the beginning of turn 3. A corps HQ appears stacked with its army HQ. An army HQ (or a corps HQ if its army HQ has been destroyed) appears on a friendly depot hex (see *Supply Transfer Lines*, page 21).

SUPPLY TRANSFER

You can transfer supply points between HQs using the supply table, either to move them from the depot to the front or to move supply from an idle corps to a busy one.

Off-map Depots: Each side has an off-map supply depot, which works just like a HQ except that it never enters the map and supplies may be transferred only out, never in. Each side receives new supply points every turn at its depot, as shown on the table on the next page. Supplies may be transferred out or left to accumulate.

Tobruk: The port of Tobruk, if in Allied hands, also receives supplies each turn. The Allied Tobruk HQ receives the points if a supply transfer line (see the next page) can be traced from it to Tobruk itself (hex 1711). Each turn's supplies are lost if not received.

Supply Availability

		Allied	
Scenario	*Axis*	*Off-map*	*Tobruk*
Brevity	150	125	25
Battleaxe	150	150	25
Crusader	100	225	125
Gazala	250	250	125

The Supply Table: You can get to the friendly supply table by pressing the right arrow ([→]). You can't get to the enemy supply table. The table has the standard headings giving the date, player moving, and turn number. The rest is a matrix to let you keep track of supply transfer. The left column is a list of supply sources, HQs which can give away supplies: all HQs including the off-map depot. The next column gives the number of points each HQ currently has available for transfer; if the HQ hasn't given any supplies away yet, this is equal to half its total points at the beginning of the turn. (*Exception:* The off-map depot has all its points available for transfer.) The next several columns list the supply destinations, HQs which can receive supplies: all HQs except the off-map depot. The numbers in these columns give the number of points currently being transferred from each source HQ to each destination HQ. If the notation "NP" appears, that source is currently incapable of transferring supply to that destination. (Note the diagonal line of NPs, showing that a HQ can't transfer supply to itself.) The last column is the number of supply points in each HQ after it has given and received supplies.

The white box is the cursor.

Moving the Cursor: You can move the cursor right with [I], [K], [G], [V], or left with [R], [D], [H], [N]; if you do this when the cursor is brown, it changes back to white. When the cursor is white, you can move it up with [U] or [T], down with [M] or [C]; when the cursor is brown, these keys are reserved for other uses.

How to Transfer Supply: First move the cursor to a chosen intersection of source and destination. Then press [J] or [F]; when you do this, the cursor changes from white to brown and supply is transferred from the source to the destination. You can change the cursor from brown to white (ending supply transfer) by pressing [J] or [F] again or by moving it left or right.

Transferring Supply: When you press [J] or [F], all the source HQ's available supply is transferred to the destination. If you want to change the amount transferred, pressing [U] or [T] will increase the amount, while [M] or [C] will decrease the amount. The size of the change is large the first time you press [U], [T], [M], or [C], decreases thereafter until it reaches one, and then becomes large again. This apparently bizarre behavior lets you adjust the supply transferred to any amount in a few keystrokes. When the amount is set to your satisfaction, stop by pressing [J] or [F] or by moving the cursor left or right. You can return to the supply table and change the supply transferred at any time until you quit your turn. Transfer takes effect at the beginning of turn resolution, before any units move or fight.

Supply Transfer Lines: In order for supply transfer between two HQs to be possible, they must be connected by a supply transfer line. The supply destination columns of the matrix on the supply table shows if supply transfer lines exist between HQs: "0" (before any supply is transferred) is shown if there is a line between the two HQs, "NP" if there isn't a line between the two HQs. A supply transfer line consists of a path 40 hexes or less long, entirely along roads or tracks, and not entering a hex with an enemy unit or minefield. (Note that this means a HQ must be on a road or track to transfer supply.) Each hex of track or rough terrain counts as two hexes, as does each hex adjacent to an enemy unit; a hex with two of these conditions counts as four hexes, and a hex with all three conditions counts as eight hexes. For example, a supply transfer line entirely along a track, through rough hexes adjacent to enemy units, could be only five hexes long. Supply transfer lines are determined at the beginning of the turn; moving your HQs will have no effect until the

next turn.

Depot Hexes: Supply transfer lines to the off-map depots are traced to a number of road and track hexes on the edges of the map. For the Axis, these depot hexes are hexes 2101, 1501, 1301, and 0901. For the Allies, they are hexes 0932, 0532, 0432, 0132, 0127, 0122, 0121, and 0114; also, hex 1711 is the depot hex for the Allied Tobruk HQ (only).

Hidden Units: If the visibility option is set at no, you may sometimes find your HQs without supply transfer lines for no reason that you can tell. If you have counted hexes right, this means that there is an unseen enemy unit (or more than one) somewhere along your supply line.

SUPPLY DISTRIBUTION

Supply is distributed from HQs to combat units automatically, as it is needed.

Command Structure: A unit can't receive supply from just any HQ: it must be the right HQ. A unit with a corps identification gets supply from its corps HQ; if that is not possible, it gets supply from its army HQ. A unit with an army identification gets supply from its army only. A unit with no HQ identification gets supply from any friendly HQ, whichever is closest. No unit can get supply directly from the off-map depot.

Supply Distribution Lines: In order to receive supply, a unit must be connected to the correct HQ by a line no more than seven hexes long, which does not pass through an enemy unit or impassable terrain. There are no other restrictions on this supply line.

When Supply is Distributed: Each time a unit uses supply points, it receives points to replace them immediately from its HQ, unless the HQ doesn't have enough points left or no supply line exists. In the latter two cases, the unit draws supply from its internal capacity (see below). Its supply will be replenished at the beginning of any impulse in which it recovers its supply line. (Either the unit, its HQ, or a blocking enemy unit must move for this to happen.)

Axis Fuel Restriction: The Axis consistently suffered from fuel shortages in the desert. This is simulated abstractly: only ¼ of the supply points in each HQ at the beginning of each turn (after supply transfer) are available for use as fuel. When the HQ has distributed that many points to units as fuel, it may not distribute any more points as fuel for the rest of the turn. When a HQ runs out of fuel during the turn, this fact is shown on its unit display in the next turn by the notation "FUEL".

SUPPLY CONSUMPTION

Each unit has internal supply storage capacity. Most of the time, a unit's internal storage remains full, and it draws supply from its HQ; the internal capacity is used only when the unit can't get supply from its HQ. Each unit has two separate supply capacities: one for fuel and one for ammunition. Capacities and consumption are per battalion; a two-battalion unit has twice the stated capacity and consumption.

Fuel:

Capacity: A battalion's fuel capacity depends on its type, as given in the unit characteristics table. The capacity is given in hexes; to determine the capacity in points, multiply by the number of points expended per hex, which also depends on unit type and is found on the same table.

Use: Whenever a battalion enters a new hex, it spends a number of fuel points depending on its type. The fuel spent does not depend on hex terrain or mode.

Ammunition:

Capacity: Each tank, armored car, and flak battalion carries 14 ammunition points. All others carry 10 ammunition points each.

Use: Ammunition points are consumed each impulse in which a unit fires. Each tank, armored car, and flak battalion consumes 2 ammunition points; each other battalion consumes 1 point. Artillery consumes additional ammunition: one point per 16 guns if in advance or disordered mode, or one point per 8 guns if in assault, defend, or regroup mode.

Food: At the end of each turn, each battalion consumes one ammunition point as food.

SUPPLY CONDITION

As a unit consumes its interior supply reserves (which happens only if it can't get supply from its HQ), its supply condition changes, as shown on the unit display.

How Supply Condition is Displayed: A unit's ammunition supply condition is displayed using the same terms used for morale and fatigue. E (excellent) means that it is receiving supply from its HQ. Anything else means that it is relying on internal stores, and the exact condition depends on the number of points it has left: 9 or more points is G (good); 7 or 8 is F (fair); 4-6 is P (poor); less than 4 is A (awful).

Fuel supply is given just to the left of ammunition supply. If the unit has fewer than 10 hexes of movement remaining and is below its maximum fuel capacity (some units have a capacity less than 10), its remaining capacity is displayed. Otherwise, nothing is displayed.

Effects: A unit without ammunition can't fire at all; a unit with 8 or fewer ammunition points (conditions fair or worse) can't fire its artillery. A unit without fuel can't move; if it routs, it remains in place and takes increased casualties. (Exception: infantry and machine gun units can still disengage if they have no fuel.) If a unit has no food at the end of the day, its morale drops by one level.

Airplanes

If the airplane option is set at *yes*, both players receive airplane squadrons which can be used to bomb enemy units. If the option is set at *no*, airplanes do not appear.

British airplanes are organized into squadrons, while Axis air units are greatly understrength *Gruppen* (German) or *Gruppi* (Italian); they are all approximately the same size and for convenience will all be referred to as squadrons. Each squadron contains a particular model of airplane. Only bomber squadrons appear in the game; fighters are taken care of abstractly, in the resolution of bomber losses. Bombers are based off the map, and only appear on the map when bombing targets. All air operations are handled using the airplane table (one for each side) which can be reached by pressing (P).

SQUADRONS

The upper portion of the airplane table lists all the friendly bomber squadrons and their characteristics: nationality (Na), unit identification (unit), aircraft type, number of operational planes (Up), number of damaged planes (Down), and the impulse of arrival on the map of three sorties (Sr1, Sr2, and Sr3). Nationality and unit ID are for historical information only. Aircraft type determines a squadron's bombing strength and its hang and turnaround times (see below). Operational planes are all those available for sorties; damaged planes do not fly but may be repaired (made operational) later. Sorties are explained below.

The lower part of the airplane table is used to assign sorties (missions) to individual squadrons. Which squadron the lower part of the table refers to depends on which squadron the upper part's cursor is on; this squadron is shown in reverse video. The upper cursor can be moved up by pressing (U) or (T), or down with (M) or (C).

SORTIES

A sortie is a single bombing mission of a single squadron. A squadron can conceivably (depending on time constraints) perform up to three sorties in a turn. In each sortie, the squadron reaches its target hex or hexes in a particular impulse, waits a specified amount of time for a target (any unit) to appear, suffers losses from fighters and anti-aircraft fire, drops its bombs, and returns to base. The number of impulses a squadron will spend over its target area waiting for a target unit is called its hang time, and is determined by the player when the sortie is assigned. After a squadron flies a sortie, there is a delay of several impulses before it can fly another sortie (time spent returning to base, reloading with fuel and bombs, and flying back to the battlefield);

this is called the squadron's turnaround time.

Squadrons can fly sorties during any of the first ten impulses of the turn; no sorties are allowed during the last two impulses (night).

To assign a sortie, first move the upper cursor to the squadron you want. Then pick a sortie by pressing (J) or (F). On the lower part of the table, the lower cursor will appear on the first sortie; to pick the second and third sorties press (J) or (F) again. While a sortie is picked, you can't move the upper cursor. Pressing (J) or (F) when the third sortie is picked will drop all sorties and lets you move the upper cursor again. A sortie has three characteristics, all defined by the player: impulse of arrival (Interval), hang time, and target area.

Impulse of Arrival: This is the impulse in which the squadron reaches its target area and, if there is a target in the area, drops its bombs. When you first pick a squadron's first sortie, its arrival impulse is set at 1. You can delay a sortie's arrival (increasing the number of the impulse) by pressing (U) or (T), or speed its arrival by pressing (M) or (C). (Note that these same keys are used to move the upper cursor when no sortie is picked.)

Hang Time: This is the number of impulses a squadron will wait over its target area for a target to appear. Hang time starts at 1; that is, the squadron spends only its impulse of arrival over its target area. You can increase a sortie's hang time by pressing (H), (N), (R), (D) or decrease it with (I), (K), (G), (V). Each airplane type has a maximum hang time which can't be exceeded; see the airplane characteristics table.

Note: A squadron drops its bombs only once per sortie. If there is a target in its target area when it arrives, the squadron immediately drops its bombs and returns home; otherwise it waits until either a target unit enters the area (in which case it drops its bombs and departs) or its hang time runs out (in which case it returns to base without dropping its bombs).

Target Area: Every sortie has a target area of from one to six contiguous hexes. Target hexes are designated using the air tactical map, a marginally modified version of the tactical map. To get to the air tactical map, press (↓) when a sortie is picked. (If no sortie is picked, you will end up on the regular tactical map.) The air tactical map's cursor is an airplane symbol and can be moved around the map using the directional keys. Press (J) or (F) to designate the cursor's hex as a target hex; if the hex is already a target hex, (J) or (F) cancels the target hex. All the target hexes of a single sortie must form a single, contiguous group. If you try to add or cancel a target hex so as to make the target area no longer contiguous, the computer won't let you.

After you have defined the target area to your satisfaction, return to the airplane table with (P). Note that all the hexes of the sortie's target area are now listed on the lower part of the table.

Changes: You can change any features of a sortie at any time, up to the point when you quit the turn. However, see below.

Canceling a Sortie: Pressing (SPACE) on the airplane table when a sortie is picked will cancel that sortie and all higher-numbered sorties.

Limits: A squadron can fly at most three sorties during the ten impulses per turn available for air operations. A squadron can only do one thing at a time, so when you define a sortie, limits are placed on later (and earlier) sorties. For example, if you schedule a sortie to arrive on impulse 1 and hang for three impulses, and the squadron's turnaround time is four impulses, the next sortie can't be scheduled for any earlier than impulse 8. Conversely, if you have a sortie scheduled for impulse 6 (with the same turnaround time), you can't schedule a sortie for impulse 1 with a hang time greater than one; if you wanted to schedule a sortie for impulse 1 with a hang time of two, you would first have to change the next sortie's arrival time to impulse 7 or later.

Sometimes the timing of sorties may mean that a squadron is only allowed two sorties (or even only one) in a turn,

especially if you give your sorties high hang times. Note that no sortie may extend past impulse 10.

BOMBING

When a squadron performs a sortie, it flies to its target area and bombs all units it finds there, splitting its attack evenly among all units in the area. *Important:* a squadron makes no distinction between friendly and enemy units; it will bomb any friendly units in the target area. If there are no units in the area, the squadron will bomb the first unit that enters the area before its hang time is exhausted.

Bombing causes losses to men and armored vehicles just like combat; the losses happen before any ground combat in that impulse. A squadron's bombing power (and the losses it inflicts) depends on its number of planes and their type.

AIRCRAFT LOSSES

Before they drop their bombs, squadrons may take losses from enemy fighters and anti-aircraft guns. There are two types of losses: damaged planes and destroyed planes. Damaged planes are unserviceable ("down") but may be repaired; destroyed planes are eliminated permanently. Planes which are damaged or destroyed do not bomb their targets; sometimes, if a squadron takes particularly heavy losses, surviving planes will also fail to bomb (the mission was aborted).

Airfields: There are four airfields on the map. The more of these airfields owned by a side, the more planes the enemy will lose. This represents the short-range fighters which can be based there. A side owns an airfield if its units were the last to enter the hex (or it was friendly territory at the beginning of the game) and no enemy unit is adjacent to the hex. (If enemy units are adjacent, neither side owns the airfield.)

Headquarters: If a HQ is bombed, it loses supply points. Squadrons take higher losses when bombing HQs, because of the substantial anti-aircraft defenses at supply depots. Note: German flak units do not affect aircraft losses—they're busy looking for tanks to shoot.

Repair: Roughly ⅔ of airplane losses will be only damaged. Every turn, if the squadron flies any sorties, ¼ of its starting total of damaged planes are repaired at the end of the turn. If the squadron doesn't fly any sorties, ½ of its damaged planes are repaired. Repairing a plane changes it from "down" to "up".

Free Setup

When the historical setup option is set at *yes*, all units start the game in their historical positions and all HQs in play are given their historical supply levels.

When the option is set at *no*, both players have an opportunity to change their units' positions and supply allocations before the game begins. Units may be moved anywhere within friendly territory except into an impassable hex; stacking limits may not be exceeded.

Setup works in the same manner as a turn. The Axis player sets up first; when he quits (presses Q twice), it's the Allied player's turn to set up; when he quits, the game begins with the Axis first turn.

When your setup turn begins, all your units are in their historical positions. If the visibility option is set at *no*, no enemy units are visible. You move your units to other positions by picking them up and using the directional keys. You can move them as far as you want, drop them, pick them up again, and move them again until you are satisfied with all your units' positions. The map is divided into enemy territory and friendly territory. You can move your units anywhere in friendly territory; if you try to move a unit into enemy territory, the computer won't let you and the message "impassable hex" will appear.

Minefields can't be moved.

In all scenarios except Gazala, Allied friendly territory is divided into two parts: inside the Tobruk perimeter and outside it. Units can't be moved from one part to the other.

In Crusader, the Italian Trieste division begins the game outside the Axis player's

command. The three units of Trieste may not be moved.

If the supply option is set at *yes*, all supply can be freely distributed (using the supply table) among all HQs with supply lines to each other.

Once you have positioned your army to your satisfaction, press Ⓠ twice to end your setup. If you have overstacked any units, the computer will move the cursor to the overstacked hex and give you an error message. You must move units out of the hex until it is no longer overstacked. The computer will not let you end your setup with units overstacked.

If you are playing a one-player game, the computer will also move its units during free setup.

Reinforcements/Inactive Units

Some scenarios have reinforcements and/or inactive units.

The only inactive units are the Italian Trieste division (three units) in Crusader. Historically, these units were not under Rommel's command at the start of the battle but were controlled directly by the Italian high command. They were transferred to Rommel during the battle. In game terms, they are in defend mode and may not be given orders until turn 6. However, they are all released if any Allied unit comes to within three hexes of any unit of the division. Once released, they function just like other Axis units.

Reinforcements arrive in road/track hexes on the edge of the map, sometimes with one or more of their impulses already spent. During turn resolution and review, they arrive in mid-turn. If there is an enemy unit in the arrival hex, they arrive in a different road/track on the map edge. If there is no such hex free of enemy units, they wait until a hex is free (until a later turn if necessary).

Reinforcements are in march mode when they arrive; in the next impulse they assume defend mode if no orders are entered.

Allied reinforcements arrive in hexes 0932, 0532, 0432, or 0132 in order of preference. Axis reinforcements arrive in hexes 2101, 1501, 1301, or 1901.

Victory

Victory in *Rommel* is based on the point score at the end of the game. The current score is displayed during the game to keep you posted on how well you are doing. The score is based on both sides' unit strength (compared to their original strengths) and on territorial objectives. The score display shows the side that is currently winning (Axis or Allied) followed by a number. High numbers mean the player is winning with a large advantage; low numbers mean the player is winning but the game is close. At the start of the game, the score is always Axis 0. At the end of the game, a player's level of victory can be determined from the following table:

Points	*Level*
0-400	Marginal
401-800	Moderate
801-1200	Substantial
1201-1600	Decisive
over 1600	Overwhelming

Note: use ½ these totals for Brevity.

Points scored for unit strength are based on current total of men or vehicles, weighted for conventional and anti-tank firepower. Fatigue and morale don't count, but supply status does, so loss of a HQ can cause an abrupt change in the score. Aircraft are counted too, by bomb rating, with unserviceable aircraft counting somewhat less.

Whenever control of a terrain objective changes, points are gained or lost.

In Brevity and Battleaxe, Halfaya Pass (hex 0725) is worth 100 points and Bardia (hex 1224) is worth 50 points; in Crusader and Gazala they have no value. Whichever player was the last to have a unit in the hex controls the objective.

In all scenarios except Gazala, Tobruk (hex 1711) is worth 500 points. In Gazala, Tobruk is worth 300 points. The Axis player controls Tobruk if he was the last

to have a unit in the hex; the Allied player controls Tobruk if he was the last to have a unit in the hex and Tobruk is not isolated. Tobruk is not isolated if a supply transfer path can be traced from Tobruk to any Allied off-map supply depot.

In Gazala, each airfield is worth 50 points. (There are airfields at hexes 1904, 1213, 1318, and 1122.) A player controls an airfield if he was the last to have a unit in the hex and no enemy unit is adjacent to the hex.

Usually, if one player loses control of an objective, the other player gains control at the same time; the score thus changes by twice the objective's value (one player loses points and the other player gains them). Thus, if Halfaya Pass changes hands, the total change in the score is 200 points. In the case of Tobruk and the airfields it is possible for an objective to be under neither player's control; if one player loses control and the other player doesn't gain control (or if a player gains control of an uncontrolled objective) the score changes by the value of the objective.

Most objectives begin the game controlled by one side. The exceptions are Tobruk in all scenarios except Gazala (it's isolated) and Gazala airfield in Gazala (the British were the last to have units there but a German unit is adjacent).

After the Game

When the last turn has been resolved and reviewed, press (O) to advance to the tactical map. The final score is displayed, and all units of both sides are visible with all information displayed. Both sides' corps tables have complete information. You can get to both sides' supply and airplane tables, too. Press (→) or (P) once to get the Axis table; press it again to get the Allied table.

Mid-Game Options

There are a number of options available during the game. You can save the game or enter a previously saved one from disk, save or enter a turn's orders for either side, or change various features of the game.

To do any of these, you must first stop the game by pressing (S) twice. The disk drive works for a while and the game stopped menu appears. The various options are covered below.

DISK OPERATIONS

You can save or restore a game position, save or enter a player's move, or play by mail, using options 1 through 6. These options are described in a separate folder included with the game.

CHANGING OPTIONS

Press (7) on the game stopped menu to display the option menu. You can change the number of players, computer's side and skill level, visibility, fatigue and sound. You can't change supply, scenarios, airplanes, or historical setup. Procedure and effects of changing options are the same as for the pre-game options.

Everything except number of players and computer's side changes immediately; the latter two change at the beginning of the next player's turn. If, for example, you are playing the Allies against the computer and change your side to Axis, you would still have to complete the current Allied move.

If you change fatigue from *yes* to *no*, it will have no effect on the game thereafter.

You may also change the length of the game. Press (+) to increase the length of the game; press (−) to decrease the length of the game. Each press of a key changes the length of the game by one turn. The maximum length is 99 turns; the minimum is the current turn number (which ends the game immediately). You can also use this option to continue the game after it has ended.

When all options are set to your satisfaction, press (ESC) to return to the game stopped menu.

RETURNING TO THE CURRENT GAME

You can leave the game stopped menu and return to the game in progress by press-

ing (Ø) (zero).

The Joystick

Most game functions can be handled using the joystick (in port 1) instead of the keyboard, if desired. Using the joystick doesn't disable the keyboard, and you can freely mix both types of control. Since the majority of players find keyboard input easier for most functions, elsewhere in this book refers to the keyboard only, and joystick input is described by referring to the keys of the keyboard.

Pick Up and Drop: To pick up or drop a unit (or any other functions of the (F) and (J) keys), press the joystick fire button briefly and release it.

Directions: To enter one of the six directions (cursor movement, increase and decrease supply quantities, etc.), move the joystick with the fire button up, as shown on the reference card. Note that moving the joystick directly left or right has no effect. This is to make it easier to enter the four diagonal directions. For example, it is easy to enter the upper right direction by first moving the joystick right and then up.

Other Commands: To enter other commands, press the fire button and hold it down while moving the joystick. The correspondence between joystick movements and their equivalent keystrokes is shown on the reference card. Note that though you can't enter the various modes directly by using the joystick, you can cycle through them (equivalent to pressing (O)) by moving the joystick up.

Joystick Sensitivity: The program delays after each joystick command is entered. You can control the length of this delay. Making the delay shorter means the computer responds faster. You can increase the length of the delay by pressing (CTRL) (+) or decrease it by pressing (CTRL) (-).

The Computer as Player

The computer can play fairly well, but it still isn't as flexible as a human player. It does provide a good opponent, especially when all options are in effect (visibility in particular should be set at *no*), and especially at the high skill level. Because of the complexity of its artificial intelligence routines, the computer player can take a fairly long time to make its move. The time ranges from under 3 minutes (Brevity with all options off, low skill level, and a simple game position) to over 15 minutes (Gazala or Crusader with all options on, high skill level, and a complex position).

Unlike many other computer games, the computer player does not cheat when making its move. The same information—no more and no less—that is available to a player is available to the computer player when it is making its move. For example, when visibility is set at *no*, the only enemy units whose locations the computer player knows are those adjacent to its units. Also unlike many other games, the only difference between skill levels (and between one-player and two-player games) is in the "intelligence" of the computer player; there are no rules or unit strength changes.

The game itself uses a pseudo-random number generator to resolve events; all games between two human players will have identical results if the players choose identical options and enter identical orders. However, the computer player uses a "real" random number generator in making some of its decisions. (If it didn't, it would be too predictable.)

When the computer is taking its turn, a list of the things it thinks about is displayed, along with counters showing how much time (in seconds and tenths of seconds) it spends on each item. The counter that's currently increasing is what the computer is "thinking" about.

Program Messages

The bottom line on the screen is used for messages from the computer to you. The various messages are given below.

Put game disk (side B) in D1. Press (RETURN) when ready: You are either in the midst of starting a game or return-

ing to one in progress from saving or entering a position or turn. Insert the game disk with side B up and press (RETURN).

Insert side A and press any key: You are restarting the game and the computer needs to read from side A of the game disk. To continue, insert the game disk with side A up and then press any key.

Unknown key, (ESC) exits: You are in the midst of saving or entering a position or turn. The computer didn't understand your last keystroke. You could try to press an appropriate key or simply start over with (ESC)

Problem with disk/disk drive. Correct disk and side? (ESC) exits, space bar retries: You are in the midst of starting a game or saving/entering a position/turn. For any of a number of possible reasons, the computer is unable to read/write to a disk. Check the drive and disk to make sure everything is working correctly (the right disk is in the drive, the door is closed, etc.) and then press (SPACE) to have the computer try it again or press (ESC) to return to the mid-game menu. There is very little danger to the game in progress or the game disk. The computer will try over and over again until it succeeds or you give up.

Target added: You have just added a target hex to an airplane squadron sortie.

Target deleted: You have just deleted a target hex from an airplane squadron sortie.

Targets unconnected: You are trying to add or delete a target hex for a sortie and the hex you have chosen is not allowed because it would result in unconnected target hexes.

Maximum Exceeded: There are two possible reasons for this message. If you are trying to add an airplane sortie target hex, the message means that you already have the maximum number of target hexes (six). If you are trying to move a unit into a hex, it means that you are trying to move a unit into a hex already containing 12 friendly units. You can put more than 12 units into a hex, but the computer can only display 12. If there are 13 or more units in a hex, you can only pick up the 13th one (the one listed 13th on the order of battle) if you first move another unit out of the hex.

Earlier arrival not possible: You have tried to change the arrival of an airplane sortie to an earlier time and either the arrival time is already 1 or there has not been enough turnaround time since the previous sortie.

Later arrival not possible: You have tried to change the arrival of an airplane sortie to a later time and either the arrival time plus the hang time already add up to impulse 10 or there will not be enough turnaround time for a later sortie which has already been defined.

Hang time at maximum: You have tried to increase a sortie's hang time beyond the aircraft type's maximum.

All available supply transferred: You have tried to increase the amount of supply transferred from a headquarters beyond the maximum.

Transfer amount zero: You have tried to reduce the amount of supply transferred below zero.

Friendly and enemy units in hex: Units from both sides are stacked in the hex. This message is to help you notice when your units have been moved to an enemy-occupied hex. Usually, only the enemy units will be visible on the screen and the unit display. However, you can pick up your units in enemy-occupied hexes, and then your units in the hex will be displayed.

Not enough time left: You are trying to enter an order which takes more time to complete than the unit has left.

Impassable hex/hexside: You are trying to move a unit into illegal terrain. Usually this is a sea hex, an impassable hex, or a cliff hexside. This message also appears during free setup if you try to move a unit into an enemy-controlled hex.

Map edge: You are trying to move the cursor or a unit off the edge of the map.

Unit immobile: You are trying to move an inactive unit or pick up a minefield.

Unit off map: The cursor on the corps table is on a reinforcement which has not yet entered the game.

No order entered: You are trying to

cancel the order of a unit with no orders (this always appears when you cancel all a unit's orders with (SPACE)), or you are locating units without orders on the strategic map.

No unit in hex: You are trying to pick up a unit in a hex in which there are no friendly units (although there may be enemy units there).

Last unit: You have pressed (Z) with the last unit listed in the OB picked up. To get to the first unit in the OB, drop the unit and then press (Z).

Key undefined: You have pressed a key that has no meaning in the game.

Key undefined here: You have pressed a key that is used in the game, but not at the moment.

HQs cannot: You are trying to have a HQ do something other than march or defend.

All units have orders: You have just searched for units without orders and none were found.

Review paused, press X to end review: You were in the middle of reviewing units' orders and pressed (X). You can cancel the rest of the review by pressing (X) again, or continue the review by pressing (SPACE)

Stacking limit exceeded: You are trying to exit from free setup and one or more hexes has too many units in it. The cursor is positioned on one of the overstacked hexes. You must correct the overstacking before you can exit.

End turn with Q: You have pressed (Q) once. You can quit the turn by pressing (Q) again or cancel the order by pressing (SPACE)

End game with Q: You have reached the end of the game and have pressed (Q) once. You can end the game by pressing (Q) again or cancel the order by pressing (SPACE)

Restart turn with (CTRL) X: You have pressed (CTRL) (X) once. You can start the turn over (canceling all units' orders) by pressing (CTRL) (X) again or cancel the order by pressing (SPACE)

Stop game with S: You have pressed (S) once. You can stop the game and go the stopped game menu by pressing (S) again or cancel the order by pressing (SPACE)

AIRPLANE CHARACTERISTICS TABLE

Type	*Bomb Str*	*Hang Time*	*Trn Time*
Ju-87	4	1	3
Ju-88	4	2	5
Br-20	4	1	5
Wellington	3	4	6
Maryland	3	1	5
Blenheim	3	2	5
Boston	4	1	5
Hurricane	2	1	3
Kittyhawk	2	1	3
Baltimore	4	2	5

Bomb Str (Bombing Strength): Relative effectiveness of aircraft types. *Hang Time:* Number of impulses over target area. *Trn (Turnaround) Time:* Number of impulses between sorties.

UNIT CHARACTERISTICS TABLE

	—Combat Strength—			——— Movement Costs ———						— Fuel —	
Type	*ArAtk*	*ArDef*	*Conv*	*Clear*	*Rough*	*Road*	*Track*	*Esc*	*Asslt*	*Cap*	*Use*
Pnz	15	8	40	3	5	1	2	+3	6	14	2
M13	10	4	20	4	5	1	2	+4	6	12	2
L3	1	2	10	3	5	1	2	+3	6	8	2
L6	5	2	10	3	5	1	2	+3	6	14	2
Mat	10	16	20	5	5	1	2	+6	8	14	3
Val	10	12	20	4	5	1	2	+4	6	9	2
A10	10	6	20	4	5	1	2	+4	6	10	2
A13	10	6	20	3	5	1	2	+3	6	10	2
Cru	10	8	20	3	5	1	2	+3	6	14	2
Stu	10	6	20	2	4	1	1	+2	6	8	1
Mk6	1	2	20	2	4	1	1	+3	6	14	1
Grt	15	12	30	4	5	1	2	+4	6	12	2
AC	1	2	10	2	4	1	1	+2	6	14	1
Rcn(g)	-	-	6	2	4	1	1	+2	6	14	1
Rcn(a)	-	-	4	2	4	1	1	+3	6	14	1
Rcn(i)	-	-	3	2	4	1	1	+3	6	14	1
Inf(g)	-	-	3	5	5	2	4	+6	8	14	1
Inf(a)	-	-	2	4	5	1	2	+4	6	14	1
Inf(i)	-	-	1	5	5	2	4	+6	8	14	1
Mot(g)	-	-	4	2	4	1	1	+3	6	14	1
Mot(a)	-	-	3	2	4	1	1	+3	6	14	1
Mot(i)	-	-	1	2	4	1	1	+3	6	14	1
Ber	-	-	3	2	4	1	1	+3	6	14	1
MG	-	-	2	5	5	2	4	+6	8	14	1
Flk	-	-	4	2	4	1	1	+6	8	14	1
HQ	-	-	-	3	5	1	2	+3	-	-	10
AT(g)	15	-	-								
AT(a)	8	-	-								
AT(i)	8	-	-								
AT(flk)	50	-	-								
Guns(g)	5	-	25								
Guns(a)	5	-	18								
Guns(i)	5	-	15								

After unit type, (g) means German, (a) means Allied, (i) means Italian. *Combat Strengths:* Relative effectiveness of the unit types. *ArAtk:* Armor Attack. *ArDef:* Armor Defense. *Conv:* Conventional Attack. *Movement Costs:* Number of impulses to move one hex or cross one hexside (escarpment). Clear includes airfield, town, and hill. *Asslt* is the time used when entering any hex in assault mode. If the defender disengages before an assaulting attacker's assault time is over, the attacker spends one impulse changing to advance mode before entering the defender's hex. *Fuel Cap:* Maximum number of fuel supply points carried by the unit type. *Fuel Use:* Supply points used per hex entered.